

TRANSFORMATIVE EFFECT OF E-COMMERCE AND M-COMMERCE ON NATIONAL PRODUCTIVITY IN INDIA

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ABSTRACT

After the explosive growth in mobile phone penetration shows that major Indian population has adapted the mobile phone and advancement in mobile technology; became an integral part of life as its potential to deliver services anywhere, anytime which made mobile devices ubiquitous in India. This has opened the new era in mass communication and transformed it as a transactional device for trading and commerce which is referred as Mobile Commerce (M-commerce) the next generation of Electronic commerce (E-commerce). So there is a need to investigate significant impact of mobile commerce and E-commerce in India, in terms of exposure, diffusion, affordability, reach-ability and the use of technology for commercial, social and human resource development which contributes to national productivity in India. In this paper authors attempted to answer the research question that 'what is significant impact of E-commerce and M-commerce on national productivity in India?' For this study information is collected from TRAI, RBI guidelines, Government Reports and reports published by various industries available online; different websites, opinion given by top management of online companies, blogs and articles from Daily newspapers like 'The Economic Times'.

In this study authors investigated the potential of E-commerce and M-commerce by reviewing its current status of M-commerce market, the impact of Mobile technology on Economic, social and Business development. Through this paper, authors attempted to identify the accelerator for the future growth of E-commerce and M-commerce with its present volume transactions in India. Authors observed that ubiquitous, pervasive, customized and innovative services, right regulation and right models will drive the future Ecommerce and M-commerce and it will occupy large segment in Indian market.

KEYWORDS: E-Commerce in India, M-Commerce in India, Impact of Mobile Technology and E-Commerce on Productivity, Accelerators of E-Commerce in India, Accelerators of M-Commerce in India

1. INTRODUCTION

Productivity is an average measure of the efficiency of production; expressed as a ratio of output to inputs. In general improving productivity means yielding more output by means of profitability, economic growth, performance, efficiency, quality, surplus value with minimization of Inputs like capital, labor, land, energy, materials, time, errors, using resources in activation, automation and technology. Depending on the context, data availability and the selection of input and output measures, productivity calculations can have different interpretations at different levels like business organizations, society, government and individual citizen of country. At a firm or industry level, productivity growth can

be increased profits and dividend distributions, better and efficient working condition. Productivity growth is important at the firm level to meet its requirement for workers, shareholders, and governments in term of taxes and regulation, and still remain competitive or even improve its competitiveness in the market place. At the national level, productivity growth raises living standards because more real income improves people's ability to purchase goods and services, enjoy leisure, improve housing and education and contribute to social and environmental programs. Productivity is considered a key source of economic growth and competitiveness and, as such, is basic statistical information for many international comparisons and performance assessments of country [61][63]. Productivity measures are key indicators of economic performance and there is strong interest in comparing them internationally [63]. Productivity growth is a crucial source of growth in living standards. Productivity growth means more value is added in production and this means more income is available to be distributed [61].

Productivity Drivers

For long-term productivity performances, The Office for National Statistics (UK) identifies five drivers that are investment, innovation, skills, enterprise and competition. Other drivers of productivity growth include effective supervision and job satisfaction to produce more in quantity and quality. An employee who has an effective supervisor, motivating them to be more productive is likely to experience a new level of job satisfaction thereby becoming a driver of productivity itself. [61][64]. A new era of productivity growth opened up in the 1990s which has consider factors to accelerate Productivity growth are Greater competition, Technology, Globalization. Developments in information and communications technologies (ICT), has played a large role in the productivity acceleration of developed countries from the mid-1990s.

ICT is linked to productivity growth in three ways. First, substantial MFP gains through ICT equipment with ability to manufacture more and more powerful and functional equipment, without a commensurate increase in inputs. Second, investment by using industries in ICT equipment raises the rate of capital deepening (substitution of capital for labor). Third, users are able to use ICT equipment as a platform for their own innovation in products and processes (a source of MFP gain) [65][63]. In the last decade, an increasing number of economists have come to conclude that standards of living are improved with innovation like the creation and adoption of new products, services and business models [67]. So there is a need to investigate significant impact of M-commerce and E-commerce in India, in terms of exposure, diffusion, affordability, reach-ability and the use of technology for commercial, social and human resource development which contributes to national productivity in India.

2. LITERATURE REVIEW

From 1990 onwards, methods of doing business have been tremendously changed with the innovations, fast development of ICT which offers powerful mechanism for promoting social and economic growth. Several recent studies have explained the remarkable success in using ICTs to help communities and to create new opportunities in developing countries. The large portion of the articles in this area are related to E-commerce and m-commerce theory and research, especially the study of E-commerce and M-commerce behavioral issues, Development; Cultural differences on adoption; E-banking and Mobile banking and payments issues; E-commerce and m-commerce overview, context, and usage. Miu li [2008] identified that technology foundation, user satisfaction, management of informatization, EC security, and potential technology investment tended to have the most significant impact on EC development, Inma et. al [2008] evaluated the contribution of the size of the potential market represented by the

community of Internet users to the development of electronic commerce [18], Cipriano et.al [2010] suggested that e-buying process has a positive influence on firm efficiency [5], Prashant P. [2009] developed a model that went beyond intention and included key relational concepts (satisfaction, value, loyalty, etc.), trust and its components are a major part of this model, which was based on strong theoretical foundations[8]. Ali Akbar [2011] proposed a practical model of e-commerce for rural areas of Iran [1] Very few articles are available on E-commerce in India. [Shweta et. al. [2010] revealed that low cost of the PC and the growing use of the Internet are main growth indicators for Ecommerce in India [47]; Sridhar et. al. [2010] many firms in India still have not realized the potential benefits of EC [14]; Pradip Thomas [2009] explored variables that impact on the larger context of ICTs in development in India [3]. Felicitta et. al. [2008] concluded that M-commerce business model serve as drivers of the growing market demand [28]; Khawaret. al [2010] proposed an initial enterprise architecture framework for mobile commerce that which provides practitioners and researchers a platform for considering the development of m-commerce systems [35]; Yiming et.al [2008] investigated the relationships among personal innovativeness, perceived usefulness, perceived ease of use, perceived behavior control, subjective norm, perceived risk and initial intention to adopt M-commerce; She-I Chang [2009] identify the top critical successful factors like Technology and Task aspects and important factors for m-commerce adoption as the support capabilities of the IT vendor, senior management support, and capabilities of the project team of mobile commerce (m-commerce) adoption to develop a model based on this; Qingfei et.al. [2009] concluded that usability is a key factor to mobile commerce adoption in China and to increase mobile commerce adoption in China. From the study of earlier researcher work, authors found that Developing countries like India failed to follow the advantages of E-commerce and E-commerce is an important indicator of growth. The productivity which is measured as output divided by input is likely to be higher than e-firms than non e-firms and m-commerce is extension of E-commerce will make large positive contribution to overall productivity as it continuous to expand in size relative to rest of marketplace. M-commerce is continuously evolving after every passing day; its impact on productivity is likely to increase in coming years. Many researchers have found the linkage between E-commerce and productivity so there is need to find out the linkage between E-commerce and M-commerce practices, and productivity.

3. E-COMMERCE AND M-COMMERCE PRACTICES AS PRODUCTIVITY MULTIPLIER

E-commerce, and M-commerce are ICT enabled practices which provides multiple benefits in terms of improvement of quality, efficiency, cost saving, time saving for business organization, Society, and government so there is a need to investigate its effect on Productivity. In this section authors have discussed about the benefits of E-commerce and M-commerce benefits to understand its effect on productivity.

E-commerce is the buying and selling of goods and services on the internet, by means of website, through shopping cart and allows payments through cards or e-banking. It is a frontier for doing global business, which offers multiple benefits to increase the productivity of the business organization by many ways like starting a business process when a request comes from a customer and it uses just-in-time manufacturing way, easily reaching to a fast growing online community, providing unlimited shelf place for products and services, merging the global geographical and time zone boundaries and helping to reach national and global markets at low operating costs by digitization of information [61], improves the brand image, simplify the business processes and make them faster and efficient.[68] It helps government to deliver public services like health care, education, social services at reduced cost and in improved way and for consumers it

provides more options to compare, review and select the cheaper and better product or services. For the society has enabled access to services and products to rural areas as well which are otherwise not available to them, Customers need not to travel to shop a product thus less traffic on road and low air pollution. [68] [61].

Mobile Commerce is the subset of e-commerce, which includes all e-commerce transactions, carried out using a mobile (hand held) device provides opportunities for small businesses to sell new services as well as to operate more efficiently. [5][6][9]. It provides many advantages to business organization, Government and society like Mobile technology allows companies to have always on connectivity between employees, vendors, and/or customers [65]. Its specific inbuilt characteristics such as ubiquity, personalization, flexibility, and distribution, instant connectivity, immediacy, control over data which can be converted into new type of services. [69] Any transaction, with a monetary value, conducted over a wireless telephone network supports commerce on move with easily monitored communication.

M-Commerce increases customer satisfaction, reducing time to order, cost savings, and creates new business opportunities like location based commerce. M-commerce is available anywhere, anytime with relatively small devices like mobile phones reduce IT training and help desk resources as compare to PC.[70] M-commerce can be highly personalized and user has control over data. M-commerce is more personalized than e-commerce.[69] It has ability to target a large active consumer group by specific demographic information - e.g. age, location, gender.[71] Mobile phones are relatively cheaper in India and can have a better reach than any other technology. It provides Cost efficiency- with low production and distribution costs, and additional revenue from replies to promotions and competitions, Cross-media integration, Convenience and accessibility - time and space constraints are removed and people can access applications to their time and preferences. There are many ways in which individual citizen, business or government could benefit from M-commerce. These are detailed below.

Selling a Product or Service

- If your products or services are information-based and relatively low cost then you could consider delivery directly to mobile devices, with payment via the micro-payment route.
- If your products or services depend strongly on the physical presence of the customer and a significant amount of that volume could come from 'passing trade', then you might consider the opportunities offered by location-based m-commerce.

Improving Productivity: There are a much wider range of possibilities for improving productivity, for example:

- If you have workers who operate away from your offices much of the time, but who need up-to-date information in order to deliver an effective service, then an SMS-based system might be extremely useful.
- If you have mobile workers who are gathering information that is time-critical, e.g. reports, photographs, etc, then the ability to capture that information and transmit it without needing any bulky equipment could be very significant
- In future integration of different technologies like sensor with wireless technology; radio-frequency identifiers (RFID)-enabled mobile devices, Near field communication will make possible ubiquitous computing and can control different device like AC, Washing Machines or home equipments through mobile devices.

The Ability to Receive, Send and Process Information at Anytime, Everywhere

As mobile devices are more affordable than PC, it has opened up the Internet to those who can't afford PCs. The ability to access information on mobile has ability to change people's lives and livelihoods. In rural areas, it's still hard for many Indians to get access to services that are taken for granted elsewhere like latest on the weather or health services. For example, notable rural mobile applications attempt to improve rural livelihood productivity of farmers by accessing to the latest prices of crop, meaning they can negotiate the best prices for their crop at market [72].

- It can be used as the medium to educate and create awareness among the rural people [72].
- Usage of Internet on mobile device has lead to information access overcoming geographical and social barriers [73].

Mobile commerce's wide range of benefits and availability of anytime can be converted into new type business services. Mobile application requires different types of technology solutions like mobile infrastructure, mobile website and/or application development, mobile commerce solutions, mobile marketing solutions, mobile communication solutions, mobile technology hardware / software management solutions, GPS tracking solutions, much, much more [62]. Table 1 shows different types of M-commerce Applications, activities and Examples, but these applications are not limited to these types but can be more innovative, creative and intelligent in coming future.

Table 1: Different Types of Mobile Applications

Applications	Activities	Examples
Mobile ticketing	Tickets Booking; Booking Cancellation; Usages of tickets	Book My show, IRTC
Mobile Vouchers, Coupons, Loyalty Cards	Distribution Of Mobile Vouchers; Coupons And Loyalty Cards; Usages Of Vouchers, Coupons And Loyalty Cards	Dominos Pizza
Digital Content purchase and delivery	Purchase of ring-tones, wallpapers, music, video, books, games, Digital data products; Delivery of ring-tones, wallpapers, music tracks, video, books and games	Mobile Fundoo
Location-based services	Local discount offers; Local weather / news / sports; Tracking and monitoring of people; Traffic reporting and many more	Mapmy India; Quicker classified; OLX classified; Local Beat ; VithUApp
Information services	International And National News / Sports; Stock Quotes; Financial Records; Healthcare, Educational, Disaster management	Times of India; Kotak Mobile Stock Trader; ICICI Stock Watch; Immobile Money Control
Mobile banking	Check Bank Balances; Process Bill Payments; Transfer Funds Between Accounts; Verify Deposits And Other Transactions	ICICI bank; SBI; Citibank
Mobile brokerage	Stock market services	Money Control
Mobile Purchase	Catalog Display; Accept orders; Payments, Delivery	Snapdeal; Flipkart; Naaptol
Mobile Sensors, RFID, NFC	Sense the environment; capture data, Send data to appropriate device, Intelligent decision making, Automatic Task Management	Smart Parking; mKrishi
Home Appliance Management	Mobile based Device control activities like Start the device, communicate with device, Notification, Stop the device	Videocon Ac
Social Networking	Posting; Sharing; Following Group Management,	Facebook; Twitter
Entertainment	Watching Tv, Movies; Listing Music	Tata Sky; TV Guide India; What's on India; YouTube

Here Authors have considered national productivity improvement in terms of Social Development, Human Resource Development, Industries or Business organization development and Government organization development by increasing output in terms of performance, efficiency, Automation with intelligent, Quality, Quantity of work; communication of information in Real time, by minimization of time, cost, efforts, labor, land, energy, materials using resources in activation, automation and E-commerce and M-commerce based practices. E-commerce and M-commerce provides always on connectivity, increases customer satisfaction, reducing time to order, cost savings, and creates new business opportunities like location based commerce, effective supervision which are helpful to remain more productive. So these practice acts like productivity multiplier for the developing countries like India. Organizations that embrace mobility for business purposes likely will become not just more efficient, but also places where more people want to work. This could be an edge for employers in the increasing competitive challenges of recruiting and retaining talent in the coming decade [62]. Though e-commerce and m-commerce offers many benefits to users, there are many reasons for not shopping online. These reasons are lack of trust, security concerns, uncertainty about product and service quality, delay or non-delivery of goods, lack of touch-and-feel shopping experience and low internet penetration (11 percent) and poor financial and logistical infrastructure mainly in rural areas compared to other countries.

4. E-COMMERCE AND M-COMMERCE ACCELERATORS IN INDIA

Today E-commerce has become an integral part of our daily life. People use internet for various purposes which include: email, academic and financial information search, music and video on internet, chatting, online job search, gaming, booking railway/airline tickets, hotel reservation online news, internet telephony/video chat/voice chat, and online banking. E-commerce has touched the every field of human life from information search to entertainment, job search to matrimonial sites. There has been tremendous growth in E-commerce and wireless technology in last decades. This has changed how people do the business with technology environment.

For creating flexible and secure E-commerce and m-commerce in we need to leverage new technologies with old technologies and social and financial and technology development. The technology development issues that remained to be solved like extending handset battery life, increasing small screen usability, Less Powerful Processors and improving chip integration. M-commerce is a subset of E-commerce; it also faces some of the challenges of E-commerce; and its own challenges like slow transmission speeds, frequent disconnects, cost of Wireless connection and wireless communication standards over which data is transmitted, lack of awareness about services and security among customers, ubiquitous IT infrastructure for wireless communication. [4][14][15] But India has witnessed an increase in the number of internet users and mobile device penetration. This section provides the current status of E-commerce and M-commerce practices India; and reasons identified by authors to accelerate growth of these practices in India.

E-Commerce Accelerators in India

- As per the RBI directives, the payment will be credited directly to the merchants and not the intermediaries. With this arrangement, money will be available to the merchant within 3 days of transaction. This will expedite shipping of goods to the customer on time. [74]

- The IT Act 2000 was substantially modified through the Information and Technology Amendment Act, 2008, which came into effect from October 27, 2009. The IT Act of 2008 covered amendments that provided additional focus on information security. It has added sections on offences, such as Cyber terrorism and Data Protection [85] which will be act like catalyst for E-commerce transactions in India.
- 36 crore of debit cards, 1.84 crore credit cards and half of Indian population will have debits card till 2015, shows the transformation of India into cashless economy which is helpful for E-commerce and M-commerce [81].
- RBI issued new guidelines dated 28 Feb. 2013 for Secure E-banking which are oriented towards Safe Banking; and Improved fraud prevention and detection technologies have offered a safe and secure business environment and helped in preventing credit card frauds, identity thefts and phishing will boost Customer Interests and trust on E-banking transactions which will further accelerate E-banking transaction in India [79]. Secure online shopping model will be helpful to increase e-commerce uptake. However the latest industry report by First Data Corporation and ICICI Merchant Services indicate that there are about 150 million users that are 'ready' for e-commerce [32].
- India's e-commerce industry is estimated to have grown more than 30% from a year earlier to \$12.6 billion in 2013 [83] [61]. The number is projected to rise to 38 million by 2015. A fast-paced urban lifestyle, dual-income families and parking space constraints at major malls have contributed to this shift in the perception of consumer [84].
- Industry surveys suggest that e-commerce industry is expected to contribute around 4 percent to the GDP by 2020. In comparison, according to a NASSCOM report, by 2020, the IT-BPO industry is expected to account for 10% of India's GDP, while the share of telecommunication services in India's GDP is expected to increase to 15 percent by 2015. With enabling support, the e-commerce industry too can contribute much more to the GDP [83].
- It is predicted that by year 2015, around 65% of Indian population will be in the age group of 15-35 years. Since youth is an early adaptor of all technology and finds online transactions much easier and safer [3] this seems to be a positive factor for the Indian E-commerce market.
- The emergence of blogs can be considered as an avenue for information dissemination and two-way communication for online retailers and E-commerce vendors.
- Internet penetration is only about 11% as against about 81% in the US and 36% in China. However this number continues to rise at a consistent pace because of falling prices for broadband connections. [32]
- Innovation in e-commerce business models like no question asked return policies ranging from 7 days to 30 days, free product deliveries, the industry dynamics changing "cash on delivery" and product compare model offers benefits to customers than traditional store. [32]
- Some companies have begun to develop support mechanisms for the entire cash on delivery model and are trying to reach at corners of India, including in the interiors where traditional logistics companies are still not completely present. The logistics companies are also shoring up their act and have started to build specific verticals and expertise to address the requirements of e-commerce companies[32]

- Experts say that over the next 12-18 months there would be a couple of multi-product generalists who would be successful along with a leader in single product category [32].
- More importantly the report indicates that urban Indian consumers are now confident enough to make online purchases of up to US\$500 as against US\$40-100 in the recent past. So not only are the numbers of online shoppers projected to increase but there has been a real increase in the total value being spent online. [32]
- According to CISCO report article in The Economics times, India will have highest traffic growth rate with 44% CAGR from 2012 to 2017 followed by Indonesia and South Africa. Monthly movement for fixed and mobile data is expected to reach about 121 Exabyte by 2017, from 44 Exabyte in 2012.
- Consumers in cities are fast realizing the potential of the internet as a medium of transactions. [52]

M-Commerce Accelerators in India

A vast segment of the population that neither had a landline nor a bank account (unbanked) in their names but now not only they own a mobile handset but are also well balanced to transact on their mobile. The mobile channel has provided a rare opportunity not only to leapfrog years of poor infrastructure development but also in bypassing geographical constraints to bring massive benefits and lifestyle changes to millions of under-served people across India. India is a land of many languages but only 2 percent of the Indian population prefers reading in English. If the content is in local language, it will not only ensure quicker adoption by the user but also will be an instant success. Further, content developers are tempted to look at India as one market, and there are more players to share the pie [77]. These apart, there exists the regional markets and a huge B2B market for m-commerce in India as well [4]. Ericsson estimates that by 2017, 85 percent of world's population will have 3G coverage, and that global data traffic will grow 15 times by the end of 2017. For many, the mobile phone will be the only means of accessing the internet. Further it sheds light on the economic benefits of broadband – a ten percent increase in penetration leads on average to one percent sustainable GDP growth. [80][82] And doubling Internet speed can improve GDP by 0.3 percent [82]. The status of mobile users and usage in India is as follows.

- There are currently about 875.48 million mobile subscribers with monthly growth 0.56% and this number is expected to touch 1.2 billion by 2015 according to the press release of TRAI, dated, 13th December, 2013, the country can easily expect M-commerce to take off faster than online or e-commerce and rising India as the world's second largest mobile market after China [60].
- Internet subscribers in India grew to 164.81 million as of March 31, 2013, with as many as seven out of eight net users in the country accessing the services via their mobile phones, according to telecom regulator TRAI. The total number of mobile internet subscribers stood at 143.2 million at the end of the last fiscal [60].
- Total Broadband subscription reached 15.05 million in March 2013 from 15.00 million in February 2013. [31]
- Actively mobile Internet users are fairly young (18-35 years) and 81% percent users are using these devices as part of their daily routine - for sending emails, getting news and information, and shopping. More than half (61 %) expect these devices to become universal payment tools [4].
- RBI guidelines for mobile banking has can be two levels of mobile based banking service-the first or basic level in the nature of information like balance enquiry, SMS alert for credit or debit, status of last five transactions,

and many other information providing services. The second or standard level of mobile banking services involve financial transactions such as payments, transfers and stop payments. Currently SMS and Application based mobile payments in future will be replaced by Near-field communication (NFC) will enable ecommerce and contactless payments in a big way [79][77].

- Indians are also increasingly taking to mobile devices for not only search but shopping as well. The number of Smartphone users is rapidly increasing in India and with 4G services about to take off it's expected to get even more people going online. 27 million mobile users are active mobile internet users. More importantly, 20% users indicated intent to buy products through their mobile phones as against the current 4% and this number is expected to only increase in the next two to three years [32].
- Tech Navio's analysts forecast the Mobile Commerce market in India to grow at a CAGR of 71.06 percent over the period 2012-2016 and key factors contributing to this market growth is the growth in mobile subscriptions, government and regulatory support. However, the data security concerns of end-users could pose a challenge to the growth of this market [34].
- This rise has resulted from introduction of voting based participative TV Programs, voting on some socio-economic-political issues in Newspapers; SMS based quiz/contests on mobile, MMS etc.[4] [11] [12].
- 97% of mobile subscribers will read an SMS (text) message within 15 minutes of receiving it; 84% will respond within 1 hour [62][76].
- Average campaign response rates are typically 12 - 15% (as opposed to direct mail which averages 2 - 3%); some companies are seeing response rates as high as 60% [76].
- Mobile is NOT just for teens and twenty; prime purchasers in the 35 - 44 and 45 - 54 age brackets are also strongly embracing the use of Mobile[76]
- While 65% of email is spam, less than 10% of SMS spam [75][76].
- A recent study by Compete.com indicates that almost 40% of consumers are extremely interested in receiving mobile coupons for a wide variety of services / purchases [62].
- Demand for mobile websites is expected to exceed PC accessible websites sometime in 2011[66][76].

This data shows that basic infrastructure required for Mobile communication has been built already. But there is a need for a major enhancement in ensuring the deployment of mobile Internet infrastructure for mobile commerce at affordable cost and desirable quality which can make infrastructure ubiquitous. Business can take the advantages of connected customers, can build brand digitally, Increased Efficiency, Quality of work, increased quantity of output by using E-commerce and mobile commerce based practices. So there is need to find the effect of these practices on national productivity.

5. CONCLUSIONS

The potential of E-commerce and M-commerce is no more a matter of debate and India realizes the importance, as this is an emerging practice of businesses in today's world. The steps taken by RBI to improve security and consumer oriented E-commerce transactions and the data of online user and usage showed that India is adopting the these practices

but it is not ubiquitous and pervasive due inability to leverage mobile and electronic commerce advances, Lack of user trust and awareness in e-commerce and m-commerce technology, doubts about security and lack of widely accepted standard. Data shows that many companies are coming forward in this field to offer new services. But the worldwide acceptance and use of standards such as Japan's I-mode and Europe's WAP, in combination with the work performed by market-based competition, collaboration of key-players, and regulations imposed by regulation authorities, securities in online payments are expected to boost consumer trust in M-commerce and strengthen its potential and perspectives. India has third largest reservoir of technical human resource, second most populace country with purchasing power parity but it is not for medium of commerce for mass people, new models need to be developed and worked out with appropriate strategies to make electronic commerce and M-commerce as key policy for the development and progress in India. This current state will be further helpful to develop the new generation E-commerce i.e. mobile commerce for mass in India. With the explosion of internet connectivity through mobile devices like Smartphone and tablets, millions of consumers are making decisions online and in this way enterprises can build the brand digitally and enhance productivity but government policies must ensure the cost effective solutions. The advancements in technologies and innovative services show that India is moving from E-commerce to M-commerce. No other technology have been not ever reach to rural Indian population; in this sense M-Commerce based business models can capture 75 million rural population by providing innovative, cost effective, Efficient, daily needed Services . India still lags behind on key development indicators such as basic health and education facilities and m-commerce has potential to deliver services in immense and variety in order to promote and expedite inclusive growth; and can became asset for commerce by the people to the people in India.

REFERENCES

1. Ali Akbar Jalali, Mohammad Reza Okhovvat, Morteza Okhovvat, "A new applicable model of Iran rural e-commerce development" *Procedia Computer Science* 3, Elsevier, Science Direct, pg. no.1157-1163, 2011.
2. Nir Kshetri , "Barriers to e-commerce and competitive business models in developing countries: A case study" *Electronic Commerce Research and Applications* 6, Elsevier, Science Direct, pg. no. 443-452, 2007
3. Pradip Thomas in the paper titled "Bhoomi, Gyan Ganga, e-governance and the right to information: ICTs and development in India" *Telematics and Informatics* 26, Elsevier, Science Direct, pg. no 20-31, 2009.
4. Monideepa Tarafdara, Sanjiv D. Vaidya, "Challenges in the adoption of E-Commerce technologies in India: The role of organizational factors" *International Journal of Information Management* 26, Elsevier, Science Direct, pg. no.428-441, 2006.
5. Cipriano Quiro's Romero, Diego Rodr'iguez Rodr'iguez, "E-commerce and efficiency at the firm level" *Int. J. Production Economics* 126 (2010) 299-305, Elsevier, Science Direct, pg.no. 299-305, 2010
6. S.S. Satchidananda and Srinath Srinivasa, "An ICT Based Framework for Improving Rural Credit Delivery" *AACC 2004, LNCS 3285*, Springer-Verlag, pp. 279-286, 2004.
7. Elias G. Carayannis, Jeffrey Alexander, John Geraghty, "Service Sector Productivity: B2B Electronic Commerce as a Strategic Driver" *Journal of Technology Transfer*, 26, pg. no. 337-350, 2001.
8. Prashant Palavia in the paper title "The role of trust in e-commerce relational exchange: A unified model" *Information & Management* 46, Elsevier, Science Direct, pg no.213-220, 2009.

9. Arup Mitra in the paper titled "Trade in services: Impact on employment in India" The Social Science Journal 48, Science Direct, pg no.72–93, 2011.
10. Zeinab Mohamed, "The Impact of E-commerce on Developed and Developing Countries Case Study: Egypt and United States", international conference of Globalization , Technology and Sustainable Development, UAE, pg no. 21-32, November 2005.
11. Mei Wen, "E-commerce, Cost Savings and Productivity", Australian National University, 2002.
12. Mei Wen, "E-commerce, Productivity Linkages between Sectors, and Fluctuations in Economic Structure" University of Sydney & Australian National University, December 2005.
13. Ashutosh Agarwal, " Productivity management" Modern Packaging & Design, pg. no 58-60, October 2006
14. Sridhar Vaithianathan, "A review of e-commerce literature on India and research agenda for the future", Springer Science and Business Media, pg. no. 83-97, February 2010.
15. Neha Dixit, Saroj K. Datta "Acceptance of E-banking among Adult Customers: An Empirical Investigation in India", Journal of Internet Banking and Commerce, vol. 15, no.2, August 2010.
16. Jennifer Gibbs, Kenneth L. Kraemer and Jason Dedrick , "Environment and Policy Factors Shaping E-commerce Diffusion: A Cross-Country Comparison", Globalization of E-Commerce Project, work supported by the National Science Foundation under Grand No. 0085852, at the University of California, Irvin November 2002.
17. Inma Rodríguez-Ardura, Antoni Meseguer-Artola, Jordi Vilaseca-Requena, "Factors Influencing the Evolution of Electronic Commerce: An Empirical Analysis in a Developed Market Economy" , Journal of Theoretical and Applied Electronics Commerce Research, vol. 3, issues 2, pg. no. 18-29, August 2008.
18. Rakesh B. Sambharya, Arun Kumaraswamy and Snehmay Banerjee "Information technologies and the future of the multinational enterprise" , Journal of International Management, vol. 11, issue 2, pages 143-161, 2005
19. Shu-Chun Ho, Robert J. Kauffman, Ting-Peng Liang, "A growth theory perspective on B2C e-commerce growth in Europe: An exploratory study", Electronic Commerce Research and Applications 6, Elsevier, Science Direct, pg. no 237–259, 2007.
20. Jie Lu, "A Model for Evaluating E-Commerce Based on Cost/Benefit and Customer Satisfaction", Information Systems Frontiers 5:3, 265–277, 2003.
21. Maria Cristina Brugnoli, John Hamard, Enrico Rukzio, "User Expectations for Simple Mobile Ubiquitous Computing Environments", IEEE International Workshop on Mobile Commerce and Services (WMCS'05), 2005.
22. S. R. Subramanya, "Emerging Mobile Technologies and Issues", IEEE conference invited talk, 0-9785699-0-3/06, 2006.
23. Chu yan, HUANG Lihua, "Mobile Business Applications Adoption Model Based on the Concepts of Task Technology Fit" IEEE conference proceedings', 0-7803-8971-9/05, pg, no 1346-1350, 2005.
24. Jen-Her Wu, Shu-Ching Wang, "What drives mobile commerce? An empirical evaluation of the revised technology acceptance model", Information & Management 42, Science Direct, pg. no. 719–729, 2005.

25. Yoris A. Au, Robert J. Kauffman, "The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application", *Electronic Commerce Research and Applications* 7, Elsevier, Science Direct, pg. no. 141–164, 2008
26. Yung Fu Chang, C.S. Chen, Hao Zhou, "Smart phone for mobile commerce", *Computer Standards & Interfaces*, Elsevier, Science Direct, pg. no.740–747, 2009
27. E.W.T. Ngai, A. Gunasekaran, "A review for mobile commerce research and applications", *Decision Support Systems* 43 Elsevier, Science Direct, pg. no 3 – 15, 2007.
28. Felicitta J. Gnana Jayanthi J. "The Impact of M-Commerce in Global Perspectives- A SWOT Analysis", proceeding of 8th WSEAS Int. Conf. on ELECTRONICS, HARDWARE, WIRELESS and OPTICAL COMMUNICATIONS, ISBN: 978-960-474-053-6, pg. no. 76-80, 2008.
29. Liyi Zhang, "Ubiquitous Commerce: Theories, Technologies and Applications", *Journal Of Networks*, vol. 4, No. 4, pg. no 271-279, June 2009
30. M. K. Harma , Dr. Ritvik Dubey, "Prospects of technological advancements in banking sector using Mobile Banking and position of India" International Association of Computer Science and Information Technology - Spring Conference, pg. no.291-295, 2009.
31. Preety Bareria, Mahesh Jain, Dr. D. K. Subramanian, Mahendra Pratap, "iMFAST - Journey so Far and Ahead", International Conference on Microelectronics, pg. no.141-144. 2009.
32. Pavan Soni, "M-Payment between Banks Using SMS", *IEEE*, Vol. 98, No. 6, pg. no.903-905., 2010.
33. Deepali Sharma, Rajluxmi Murthy, D.Krishna Sundar, "Government Policies & Regulations: Impact on Mobile Commerce in Indian Context", 2nd International Conference on Mobile Governance, 2006.
34. White paper "A frame work for M_commerce", VeriSign, 2007, <http://www.verisign.com/in/static/037241.pdf>
35. Khawar Hameed, Hanifa Shah, Kamran Ahsan and Weijun Yang, "An Enterprise Architecture Framework for Mobile Commerce", *IJCSI International Journal of Computer Science Issues*, Vol. 7, Issue 3, No. 5, pg. no.6-12, May 2010,
36. Yiming Xiang, Xiaobo Wu, Qi Chen, "Personal Innovativeness and Initial Adoption of M-Commerce: Toward an Integraed Model" *IEEE ICMIT*, 4th IEEE international conference, pg. no. 652 – 657, 2008.
37. Amarjit Singh, M.P.Thapliyal, M. M. S. Rauthan, D. K. Joshi, "Enabling E-Commerce In India"
38. *TELE.NET* magazine December, 2008.
39. White paper, "Future of m-commerce", 2009, www.binarymantrasystems.com
40. *Voice &Data* Magzine, "The Essentials for The Success of M-Commerce in India", May 2010, <http://voicendata.ciol.com/content/ContributoryArticles/110051901.asp>
41. *Business India 2.0* Forum, "M-commerce India- the Furure and challenges Fcaed", 29 August 2009, <http://ijsid.wordpress.com/2009/08/29/m-commerce-india-the-future-challenges-faced>

42. Ook Lee, Dr. Woonghee Lee, "Factors That Affect Successful Mobile Commerce", The International Association for Computer Information Systems (IACIS), 2003.
43. Ravi Tandon , Swarup Mandal and Debashis Saha, "M-Commerce-Issues and Challenges", 10th Annual International Conference on High Performance Computing (HiPC 2003)
44. WolfgangKönig, "National E-Business Diffusion", www.wifrankfurt.de/publikationenNeu/NationalEbusiness-diffusion.pdf
45. BILL ANCKAR, DAVIDE D'INCAU, "VALUE CREATION IN MOBILE COMMERCE: FINDINGS FROM A CONSUMER SURVEY", JOURNAL OF INFORMATION TECHNOLOGY THEORY AND APPLICATION (JITTA), Vol. 4, Iss. 1, 2002.
46. Pavan Soni, "M-Payment Between Banks Using SMS", IEEE, 0018-9219,vol. 98, No. 6, June-2010.
47. Shweta Sharma, Sugandha Mittal, "Prospects of E-Commerce in India", ISCET 2010, ISBN 978-81-910304-0-2, pg. no.no.43-48, 2010.
48. Sourabh Agarwal, Vikram Singh Mains, A.V. Chirputkar, Giri Hallur, "Mobile banking & m-Commerce and related issues", Symbiosis Knowledge Village, Pune.
49. E Commerce in India: Overview and Reasons for Growth
(http://www.india-reports.com/summary/ecommerce_in_india.aspx)
50. Online Users in India and Their User Behavior
(http://www.india-reports.com/summary/ecommerce_in_india.aspx.)
51. E Commerce Industry in India – Government Regulations and Policies
(<http://www.india-reports.com/summary/government-regulations-and-policies-towards-ecommerce-in-india.mht>)
52. Source IAMA Report – 2008-2009(www.imbrint.com)
53. [http://www.indiareports.com/summary/Introduction to Mobile Commerce in India.mht](http://www.indiareports.com/summary/Introduction%20to%20Mobile%20Commerce%20in%20India.mht)
54. M-commerce in India to gain more traction post 3G, BWA - CXO <http://www.cxotoday.com>
55. Mobile commerce gets ready for the next big step in India - Corporate News –
http://www.livemint.com/livemint_com.mht
56. <http://www.roseindia.net/services/m-commerce-/mobile-commerce.shtml>
57. <http://www.rainbowskill.com/medium/fastest-3g-internet-in-india-provider-comparison.php>
58. <http://mobithinking.com/guide-mobile-web-India>
59. Report on online commerce, March,2011 <http://www.iamai.in>
60. Information Note to the Press (Press Release No. 05/2012)TRAI, New Delhi, www.trai.gov.in
61. <http://en.wikipedia.org/wiki/Productivity>
62. <http://www.strategicgrowthconcepts.com/growth/increase-productivity--profitability.html>

63. Dean parham, Deepa economics, "Definition, importance and determinants of productivity", http://economics.adelaide.edu.au/downloads/services-workshop/Definition_importance-and-determinants-of-productivity
64. Robert Atkinson and Howard Wial, "Boosting productivity, innovation, and growth Through a national innovation foundation" April 2008
65. Seppo Saari, "Productivity Theory and Measurement in Business", European Productivity Conference 2006 Finland, 2006
66. <http://www.strategicgrowthconcepts.com/growth/increase-productivity--profitability.html>
67. Robert Atkinson, Howard wial, "Boosting productivity, innovation, and growth through a national innovation foundation", Information Technology and Innovation Foundation, April 2008
68. http://www.tutorialspoint.com/e_commerce/pdf/e_commerce_advantages.pdf
69. [http://citeseerx.ist.psu.edu/viewdoc/download/ Mobile Commerce: current states and future trends](http://citeseerx.ist.psu.edu/viewdoc/download/Mobile+Commerce:+current+states+and+future+trends)
70. http://www.lafayetteela.gov/IS/SiteAssets/Files/Strategic_Plan.pdf
71. <http://walesscreencommission.co.uk/essentials-mobile-marketing-m-commerce>
72. Debasish Roy, "Mobile Application for Rural India: A Review", International Journal of Green Computing, 3(2), 1-13, July-December 2012.
73. Kevin Donovan, "Anytime, Anywhere: Mobile Devices And Services And Their Impact On Agriculture And Rural Development", Http://Www.Ictinagriculture.Org/Sites/Ictinagriculture.Org/Files/Final_Module3.Pdf
74. <http://www.scribd.com/doc/47825365/eCommerce-in-India>
75. <http://www.emergingstars.com/hot-tips/how-use-sms-boost-your-business-strategy>
76. <http://www.lctmag.com/technology/article/42806/mobile-technology-seeing-the-light-at-the-end-of-the-burnout-tunnel>
77. http://www.siliconindia.com/guestcontributor/guestarticle/355/Mcommerce_Commerce_for_the_Masses_Nayan_Bheda_.html
78. <http://businesstoday.intoday.in/story/mobile-banking/1/22493.html>
79. http://www.rbi.org.in/Scripts/bs_viewcontent.aspx
80. <http://www.ericsson.com/res/docs/2012/myanmar-report-2012-13nov.pdf>
81. http://articles.timesofindia.indiatimes.com/2013-12-05/india-business/44806148_1_debit-card-swipe-swipe-machines-pos-terminals
82. http://www.ericsson.com/res/docs/2012/traffic_and_market_report_june_2012.pdf
83. <http://blogs.wsj.com/indiarealtime/2014/01/08/india-weighs-fdi-in-e-commerce/>
84. [http://www.ey.com/publication/vwluaassets/rebirth_of_e-commerce_in_india/\\$file/ey_rebirth_of_ecommerce.pdf](http://www.ey.com/publication/vwluaassets/rebirth_of_e-commerce_in_india/$file/ey_rebirth_of_ecommerce.pdf)

85. Promises and Illusions of Data Protection in Indian Law

<http://idpl.oxfordjournals.org/content/early/2010/11/17/idpl.ipq006.full>

